

New species of *Mikania* from Ecuador (Eupatorieae: Asteraceae)

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Abstract.—*Mikania campii*, *M. discifera*, *M. dodsonii*, *M. farsiliflora*, *M. fosbergii*, *M. gunnarii*, *M. houstonioides*, *M. matezkii*, *M. ollgaardii*, *M. pruskii*, *M. rimbachioides*, *M. sparrei*, *M. websteri*, and *M. yanacochensis*, *M. zamorae* are described as entirely new and *M. psylobothrya* Sodiro, nom. nud., is validated.

The need for a treatment of *Mikania* for the Flora of Ecuador has led to a collaborative effort by the two authors. The coauthored treatment, covering the 59 species found in Ecuador will appear in the Flora as part of the treatment of the Eupatorieae by the senior author.

Mikania has more species than any other genus recognized at present in the Eupatorieae (King & Robinson 1987). It is a natural group easily distinguished by the heads with consistently four involucre bracts and four florets. The heads also characteristically have a subinvolucre bract that is sometimes slightly removed from the involucre in the middle or at the base of a short peduncle. *Mikania* can be distinguished from the few species of *Ophryosporus* Meyen that have four involucre bracts and four florets by the appendages of the anthers that are as long as wide and by the lack of broadened knobs on the tips of the style branches.

An unusually large number of Ecuadorian species of *Mikania* have a stipule-like flap or series of lobules on the stem nodes. These herbaceous flaps often completely surround the node to form a disk. The corollas of *Mikania* are highly variable in form. The basal tube may be short or very long, the limb may be narrowly to broadly campanulate or may have the basal part of the throat as narrow as the tube and exter-

nally appearing to be part of the tube. The lobes can be short or be narrow and divided to more than half the length of the limb. The inner surface of the throat can have the epidermis expanding more than the outer epidermis with resulting transverse wrinkles or undulations. The style is also variable, the base and shaft usually being smooth but sometimes having papillae or long hairs.

The previous treatment of the genus *Mikania* in Ecuador was by B. L. Robinson (1922). A more recent treatment has been done for adjacent Peru by Holmes and McDaniel (1982). There have been a few recent descriptions of species from Ecuador such as *M. ecuadoriensis* W. C. Holmes & McDaniel (1975) and *M. palmata* Pruski & W. C. Holmes (2000). These studies had left much undone. The present paper validates 16 new species of *Mikania* that have been recognized in this study of the genus for the Flora and Ecuador.

Mikania campii H. Rob. &
W. C. Holmes, sp. nov.
Fig. 1

Type.—Ecuador. Chimborazo/Cañar border: western escarpment, near Pimo, 10,200–10,400 ft. [ca. 3110–3170 m], 9 Jul 1945, *Camp E-4149* (holotype US, isotypes NY, S).

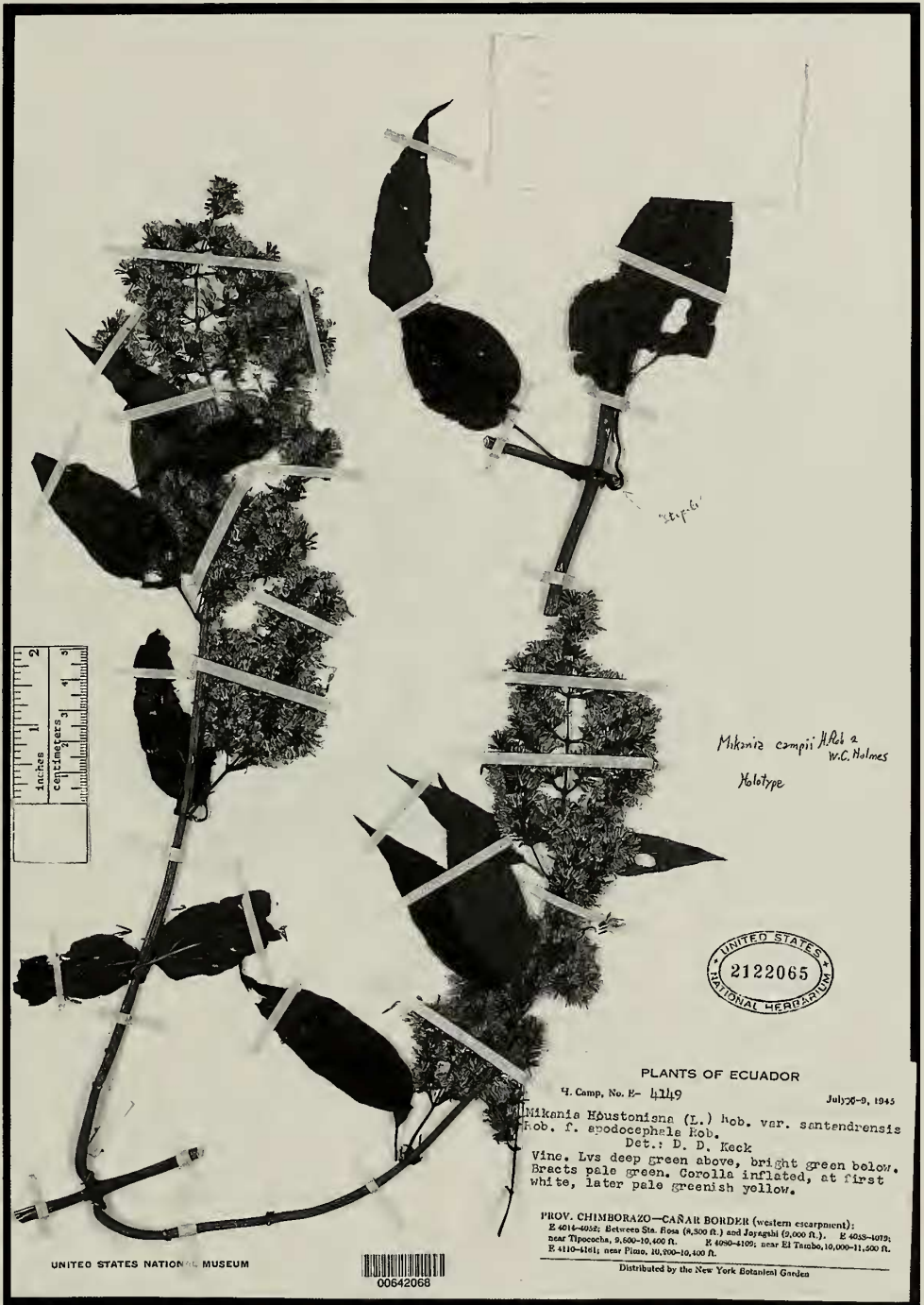


Fig. 1. *Mikania campii* H. Rob. & W. C. Holmes, holotype, Camp E-4149 (US).

Ad *M. leiostachyam similis* sed in nodis disciferis differt.

Flexuous, rather woody, moderately branched vines; stems brown to castaneous, subhexagonal, striated, puberulous, especially near nodes, glabrate; nodes with herbaceous, sinuously and densely ciliate margined disks; internodes 3–16 cm long, fistulose. Leaves opposite, petioles 1.0–3.5 cm long; blades herbaceous, deep green adaxially, bright green abaxially, narrowly ovate to nearly lanceolate, 6–11 cm long, 2.0–4.8 cm wide, base obtuse to rounded, margins remotely and minutely cuspidate-denticulate, apex narrowly acuminate, adaxial surface essentially glabrous, with prominulous veinlets, abaxial surface minutely puberulous, mostly on veins, with dense glandular dots; venation pinnate-subtriplinervate, with 2 pairs of strong subparallel arching secondary veins from near base and from 5–15 mm above base spreading at a 35–40° angle, upper pair reaching distal fifth of blade near margin. Inflorescence an elongate thyrsoid panicle with thyrsoid branches and densely spiciform branch tips and branchlets; branches puberulous to tomentellous; primary bracts foliiform, decrescent distally to only 1.5 cm long; distal bracts and bracteoles linear, 5–6 mm long. Heads ca. 7 mm high; subinvolucral bract ovate, ca. 1.5 mm long; involucral bracts oblong, ca. 3.5 mm long, 1.0–1.2 mm wide, with membranaceous rounded apices, moderately gibbous at base, densely puberulous outside and fringed on margins and apices. Florets with corollas whitish to pale greenish yellow, 3.5–4.0 mm long, with many minute glands outside, basal tube ca. 1.5 mm long, broadened above, throat broadly campanulate, not abrupt at base, 1.5 mm long, without transverse undulating folds on interior surface, lobes somewhat incurved, broadly triangular, ca. 0.7 mm long and wide, with cluster of small hairs at tip, cells subquadrate; anther thecae pale, ca. 1 mm long; apical appendage oblong-ovate, ca. 0.2 mm long and wide; style base smooth; style branches

with short papillae. Achenes ca. 3 mm long, 5-costate, with minute glandular dots on sides; pappus sordid whitish, ca. 4 mm long, of 30–35 capillary bristles, slightly broadened at nearly smooth tips.

Paratype.—Ecuador. Azuay: Sevilla de Oro, old road 10–12 km N of the village, 02°26'S, 78°37'W, 2750–2850 m, 11 Sep 1976, Øllgaard & Balslev 9327 (AAU, US).

Mikania campii is known only from 2500–3200 m in southcentral Ecuador. Habitat cited for the Azuay specimen is in a west-exposed montane forest, on an overgrown road and old road banks. Camp described the corollas as inflated, at first white, later pale greenish yellow. The species resembles *M. leiostachya* Benth. or *M. houstoniana* (L.) B. L. Rob.; but it has expanded, herbaceous, stipule-like disks on the nodes of the stems and lacks undulations on the interior surface of the corolla throat.

Mikania discifera W. C. Holmes &
H. Rob., sp. nov.
Fig. 2

Type.—Ecuador. Carchi: Cerro Golodriñas, valley bottom ca. 1 km NNE of summit, 00°15'38"N, 78°08'14"W, 2740 m, 20 Jul 1994, Boyle, Boyle, Bradford, & Skinner 3337 (holotype US, isotype MO).

In nodis disciferis, laminis foliorum lanceolatis triplinervatis, inflorescentiis laxe thyrsoides et in corollis purpureis distincta.

Herbaceous, moderately branched, twining vine; stems yellowish green, terete, weakly striated, sparsely and minutely puberulous, glabrate; nodes with large, mostly glabrous, herbaceous, stipule-like discs with short-toothed and ciliated margins; internodes to 15 cm long, narrowly fistulose. Leaves opposite, petioles slender, mostly 1–3 cm long; blades stiffly herbaceous, subcarnose, lanceolate, mostly 5.5–10.5 cm long, 1.4–3.2 cm wide, base subtruncate in larger leaves, cuneate in distal leaves, margins rather remotely serrulate, apex cau-



Fig. 2. *Mikania discifera* W. C. Holmes & H. Rob., holotype, Boyle, Boyle, Bradford, & Skinner 3337 (US).

date-acuminate, surfaces glabrous; triplinervate from near base, secondary veins spreading at 20–30° angle, veinlets not evident. Inflorescence an elongate and rather pyramidal thyrsoid panicle with laxly thyrsoid branches; branches puberulous; basal primary bracts narrowly foliiform, with petioles ca. 3 mm long and blades ca. 3 cm long or smaller; distal bracts and bracteoles linear, 3–4 mm long; peduncles 4–8 mm long, puberulous. Heads ca. 6 mm long; subinvolucral bracts at base of peduncle, linear, 2.5–3.0 mm long; involucral bracts oblong, ca. 3 mm high, 1 mm wide, apices short-acute, bases narrowly gibbous, margins minutely fringed, glabrous outside. Florets with corollas purple, with glands mostly on base of throat and outside of lobes, 3.5–3.7 mm long, basal tube narrow, ca. 1 mm long, throat abruptly campanulate, broadly cylindrical, 1.7–2.0 mm long, lobes erect, broadly triangular, ca. 0.7 mm long, 0.8 mm wide, with many glands, margins with dense short papillae, cells subquadrate; anther thecae brownish, 1.0–1.2 mm long; apical appendages rounded, ca. 0.1 mm long; style base smooth; style branches with short papillae. Achenes ca. 2.5 mm long, 5-costate, with scattered glandular dots; pappus sordid white to yellowish, ca. 3.5 mm long, of ca. 45 capillary bristles, scarcely broadened distally.

Mikania discifera is known only from the type collection. The cited habitat is mossy upper montane forest with tall trees to 30 m high, near creek margin, stunted elfin forest on ridge crest. The combination of nodal discs, lanceolate leaves, and loosely thyrsoid inflorescences distinguish the species. The flowers are said to be entirely purple which would also distinguish the species from most members of the genus with thyrsoid inflorescences.

Mikania dodsonii H. Rob. &
W. C. Holmes, sp. nov.

Fig. 3

Type.—Ecuador. Napo: km 2, carretera nueva Cotundo–Coca, colecciones desde un

lote de montana virgin cortada el dia anterior, 1130 m, 5 Aug 1984, *Dodson, Gentry, Palacios, & Zaruma 15047* (holotype US, isotype MO).

In nodis disciferis, in laminis foliorum lanceolatis pinnatinervatis, in columnis stylorum dense hirtellis et in corollis albis distincta.

Twining, herbaceous, moderately branched vines; stems greenish, terete, weakly striated, glabrous; nodes with rounded sharply toothed discs, glabrous or with few marginal hairs; internodes to 19 cm long, fistulose. Leaves opposite, petioles slender, 5–7 cm long; blades membranaceous, lanceolate, to 16 cm long, base widely obtuse to subtruncate, abruptly curving into remotely serrulate margins, apex gradually and narrowly long-acuminate, adaxial surface green, very sparsely pilosulous, abaxial surface obscurely purple; venation pinnate, with ca. four pairs of widely spaced secondary veins spreading at 60–85° angle. Inflorescence mostly axillary, short and rounded thyrsoid with corymbiform tip and branches; branches brownish puberulous; primary bracts foliiform, with blades 2.0–4.5 cm long; peduncles 5–7 mm long. Heads submature, in groups of three or four, ca. 7 mm high; subinvolucral bract of central head at base of peduncle, to 6 mm long, 2 mm wide, bracts of lateral heads on peduncles, linear lanceolate, 5–6 mm long; involucral bracts oblong-elliptical, 6–7 mm long, ca. 1.3 mm wide, obtuse and mucronate at tips, moderately gibbous at base, glabrous outside. Florets with corollas whitish, 5.0–5.3 mm long, basal tube cylindrical, ca. 2 mm long, base of throat a continuation of cylindrical tube, ca. 1 mm long, distal throat narrowly funnelform, ca. 1 mm long, lobes appearing lanceolate, ca. 1 mm long, with many small hairs and glands distally, margins with few papillae, cells appearing short-oblong; anther thecae pale brownish, ca. 1.3 mm long; apical appendage broadly oblong, ca. 0.2 mm long; style shaft densely hirtellous from near base to above middle with weakly septate hairs; style branches

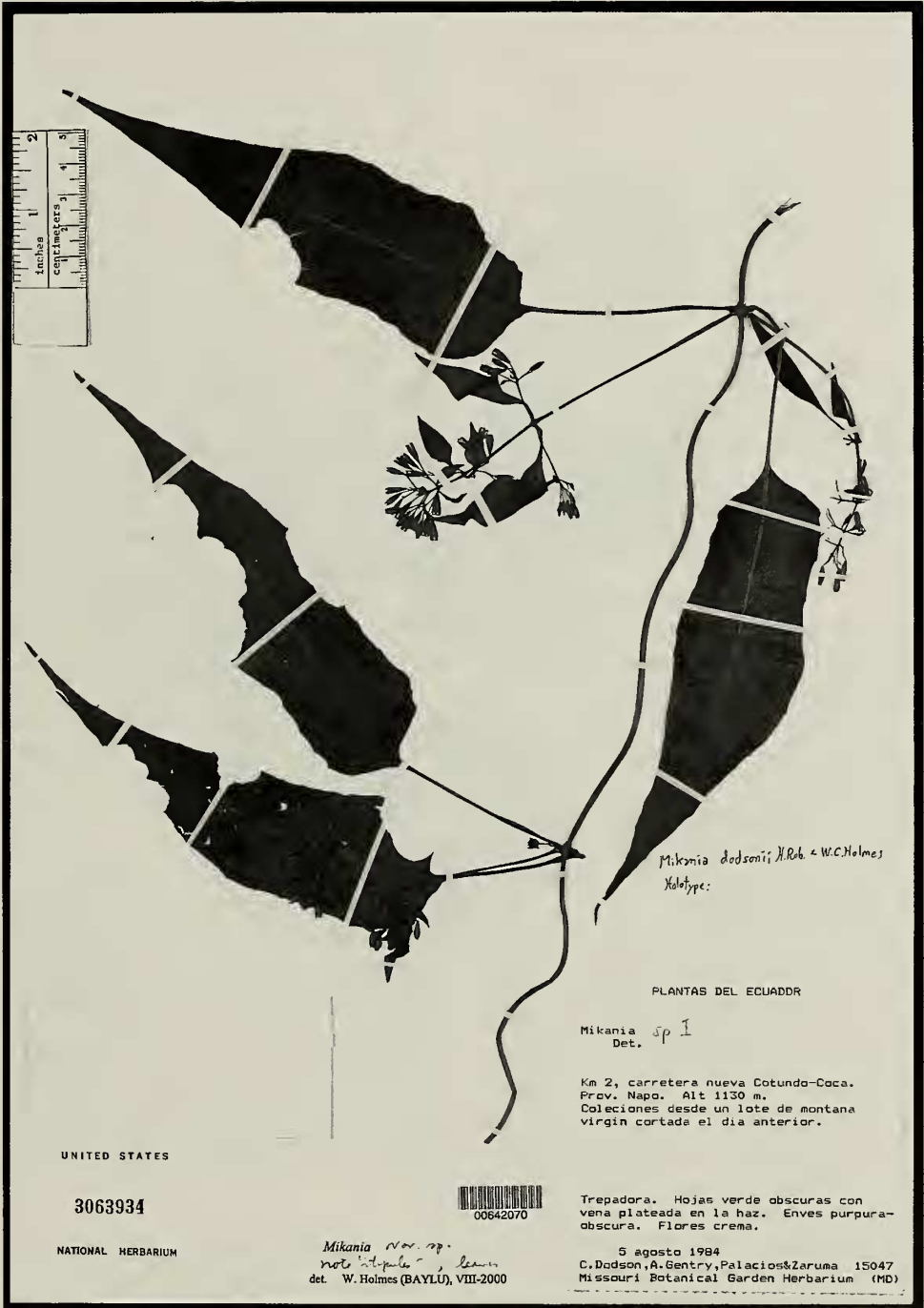


Fig. 3. *Mikania dodsonii* H. Rob. & W. C. Holmes, holotype, Dodson, Gentry, Palacios, & Zamora 15047 (US).

with short papillae. Achenes submature, ca. 2 mm long, 5-costate, with hairs mostly near base and apex; pappus whitish, ca. 5 mm long, of ca. 100 capillary bristles in ca. two series, not noticeably broadened at tips.

Mikania dodsonii is known only from the type collection. It can be distinguished by the combination of nodal discs and lanceolate leaves with pinnate venation. Even more distinctive is the hirtellous shaft of the style, a characteristic seen only in dissection. The florets are somewhat immature, and the fully expanded shape of the corolla, the form of the lobes, and the size of the mature achenes is uncertain.

Mikania farsiliflora H. Rob. &
W. C. Holmes, sp. nov.

Fig. 4

Type.—Ecuador. Pastaza: Pastaza Cantón, Colonia La Independencia, 30 km E of Puyo, proposed ARCO petroleum facility, 01°22'S, 77°45'W, 1000 m, 6 Sep 1997, Neill, Alvarez, Freire, & Vargas 10909 (holotype US, isotypes MO, QCNE).

In inflorescentiis elongatis dense corymbiformiter ramosis, faucibus corollarum quam tubis non latoribus et in lobis corollarum angustis distincta.

Rather woody vine, moderately to densely branching at 80–90° angle; stems brown, terete to subhexagonal, glabrous; nodes with only a transverse line; internodes 4.5–11.0 cm long, with solid pith. Leaves opposite, petioles 0.8–1.5 cm long; blades stiffly herbaceous, broadly elliptical, 3–8 cm long, 1.5–3.5 cm wide, base short-cuneate, slightly acuminate, margins entire or subentire, apex short-acute, adaxial surface pilosulous, abaxial surface glabrous, with numerous, minute, dark, glandular dots; venation trinervate to subtrinervate-pinnate, pair of secondary veins nearest base weak, stronger scarcely arching pair 0.7–1.4 cm above base, spreading at 25–30° angle. Inflorescences short, cylindrically to pyramidally thyrsoid panicles with spreading thyrsoid branches and densely corymbiform

branchlets; branches puberulous; bracts and bracteoles nearly linear, 4–6 mm long; peduncles 0–2 mm long. Heads ca. 8 mm high, in groups of three or four, lateral heads pedunculate, central heads sessile; subinvolucral bracts lanceolate, ca. 3 mm long, glabrous; involucral bracts ca. 6 mm long, 1 mm wide, short-acute at tips, distinctly gibbous at base, glabrous outside. Florets with corollas whitish, ca. 5 mm long, glabrous, narrowly funnelliform from base, weakly delimited basal tube ca. 2 mm long, throat ca. 2.5 mm long, narrowly triangular lobes, erect, ca. 0.5 mm long, margins smooth, cells narrow, oblong; anther thecae pale, ca. 1.2 mm long; apical appendage oblong-ovate, ca. 0.25 mm long; style base smooth; style branches with short papillae. Achenes ca. 2.7 mm long, 5-costate, glabrous; pappus sordid whitish, ca. 5.5 mm long, of 50–55 slender, capillary bristles, slightly broadened distally.

Paratype.—Ecuador. Napo: 8 km W of Lumbaque on Quito–Lago Agrio road, 5 km N of highway, edge of Cayambe–Coca National Park, 00°02'N, 77°25'W, 500 m, 21 Jul 1986, Gentry & Miller 54946 (MO, US).

Mikania farsiliflora is at present known only from two collections from the Amazonian side of the Andes in northern Ecuador. The species is distinct from other species in Ecuador and from most species in the genus by the rather elongate inflorescence with many compact, corymbiform clusters of heads. The narrow corollas with narrow lobes and without change of shape between basal tube and throat are also unusual.

Mikania fosbergii H. Rob. &
W. C. Holmes, sp. nov.

Fig. 5

Type.—Ecuador. Loja: Río Catamayo drainage, Ridge between Quebrada Amarilla and Q. Agua Corra, E slope of Cordillera de Santa Rosa, Hacienda Guaycopamba, 21 km S of Vilcabamba, 04°27'S,



Fig. 4. *Mikania farsiliflora* H. Rob. & W. C. Holmes, holotype, Neill, Alvarez, Freire, Vargas 10909 (US).

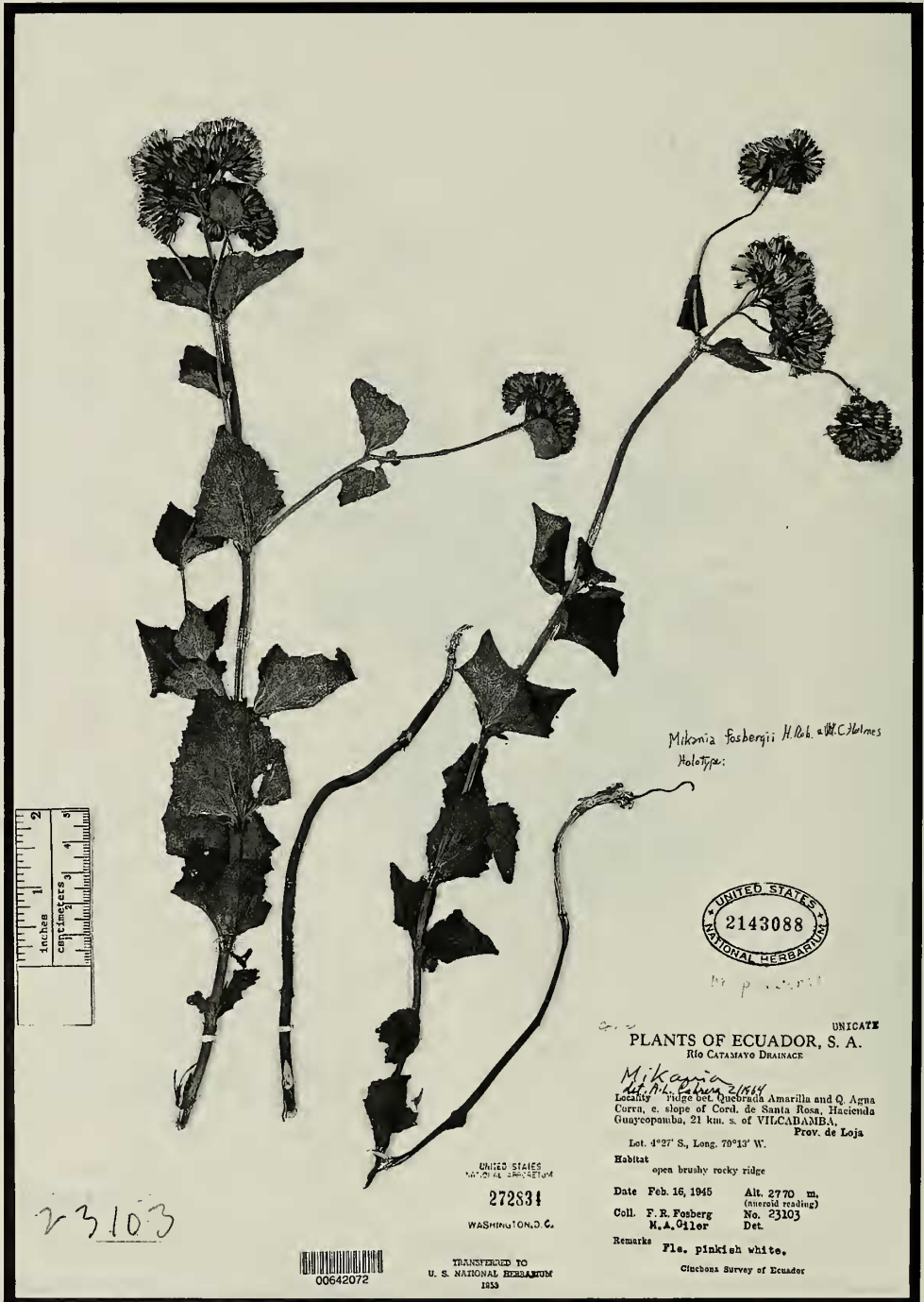


Fig. 5. *Mikania fosbergii* H. Rob. & W. C. Holmes, holotype, Fosberg & Giler 23103 (US).

79°13'W, 2770 m, 16 Feb 1945, *Fosberg & Giler 23103* (holotype US).

In habitis erectis vel suberectis et in corollis interne papillois distincta.

Sparingly branched, erect or reclining plants to 0.5–0.6 m tall, woody at base; stems brown, terete, not or scarcely striated, somewhat retrorsely hirsutulous, with glandular dots; nodes with only transverse line; internodes very short at base, becoming 4–5 cm long distally, last internode below inflorescence longest, ca. 8 cm long, fistulose. Leaves opposite, petioles 1–2 mm long; blades appearing sessile or subsessile, thickly herbaceous to subcoriaceous, broadly ovate, mostly 2.0–4.5 cm long, 1.5–4.0 cm wide, base generally subtruncate, slightly and broadly acuminate at petiole, margins with 5–10 broad teeth, apex short-acute, both surfaces with numerous glandular dots, adaxial surface densely pilose to hirsutulous, abaxial surface hirsutulous mostly on veins and veinlets; triplinervate from base of blade, secondary veins spreading at 25–30° angle, not connivent above. Inflorescence terminal on stem or branches, broadly corymbiform, to 4.5 cm high, 7–12 cm wide; branches densely hirsutulous; with foliiform bracts subtending lowest branches, branchlets appearing bractless; heads in groups of three, median usually sessile; peduncles 0–3 mm long, hirtellous. Heads ca. 10 mm high; subinvolucral bract narrowly spatulate, 4–6 mm long, hirtellous; involucral bracts oblong, 5–6 mm long, ca. 1.5 mm wide, apices rounded, base narrowly gibbous, hirtellous and with numerous glandular dots outside. Florets with corollas pinkish white, narrowly funnelform, ca. 7 mm long, mostly glabrous, basal tube narrow, ca. 2 mm long, throat ca. 3 mm long, lobes triangular, ca. 1.5 mm long, ca. 1 mm wide, with few glandular dots outside, inside papillose across entire surface; anther thecae pale reddish, ca. 2 mm long; apical appendage oblong-ovate, ca. 0.3 mm long; style base smooth; style branches with short, distinct papillae. Achenes ca. 3 mm long, 5-costate, pappus

sordid whitish, 4.5–5.5 mm long, of ca. 60 capillary bristles, not broadened distally.

Mikania fosbergii is known only from the type collection which is marked as a unicate. The type locality is on an open brushy rocky ridge at ca. 2770 m elevation close to Peru. The species may be the only non-scandent *Mikania* in the Andean region. The species is also unusual in the completely papillose inner surface of the corolla lobes. The lack of bracts at the median nodes of the inflorescences is also unusual.

Mikania gunnarii H. Rob. &
W. C. Holmes, sp. nov.
Fig. 6

Type.—Ecuador. Azuay: road Sigsig–Chigüinda, Páramos de Matanga, immediately N of pass, 3300 m, 9 Nov 1988, *Harling 25787* (holotype US, isotype GB).

Ad *M. violascentem* similis sed in superficiis adaxialibus laminarum uniformiter pilosis, in superficiis abaxialibus non glandulo-punctatis, in faucibus corollarum brevibus et in tubis et lobis corollarum elongatis differt.

Rather coarse flexuous branching vines; stems brownish, terete, striated, hirsute with usually reddish hairs, hairs usually rather stiff, sometimes brownish; nodes with transverse ridge usually bearing small- to moderate-sized lobules; internodes mostly 4–9 cm long, narrowly fistulose. Leaves opposite, petioles 5–10 mm long; blades herbaceous, ovate, 1.3–3.5 mm long and wide, base mostly rounded or subtruncate, in largest primary leaves strongly cordate, margins coarsely serrate to lobulate, narrowly and distinctly reflexed, apex obtuse to short-acute, adaxial surface evenly and strongly pilose, abaxial surface densely hirsute on veins with pale or reddish hairs, without evident glandular dots; triplinervate from or near base, secondary veins spreading at 40–50° angle, along margins in basal acumination. Inflorescences of groups of short lateral branches at tips or in middle of

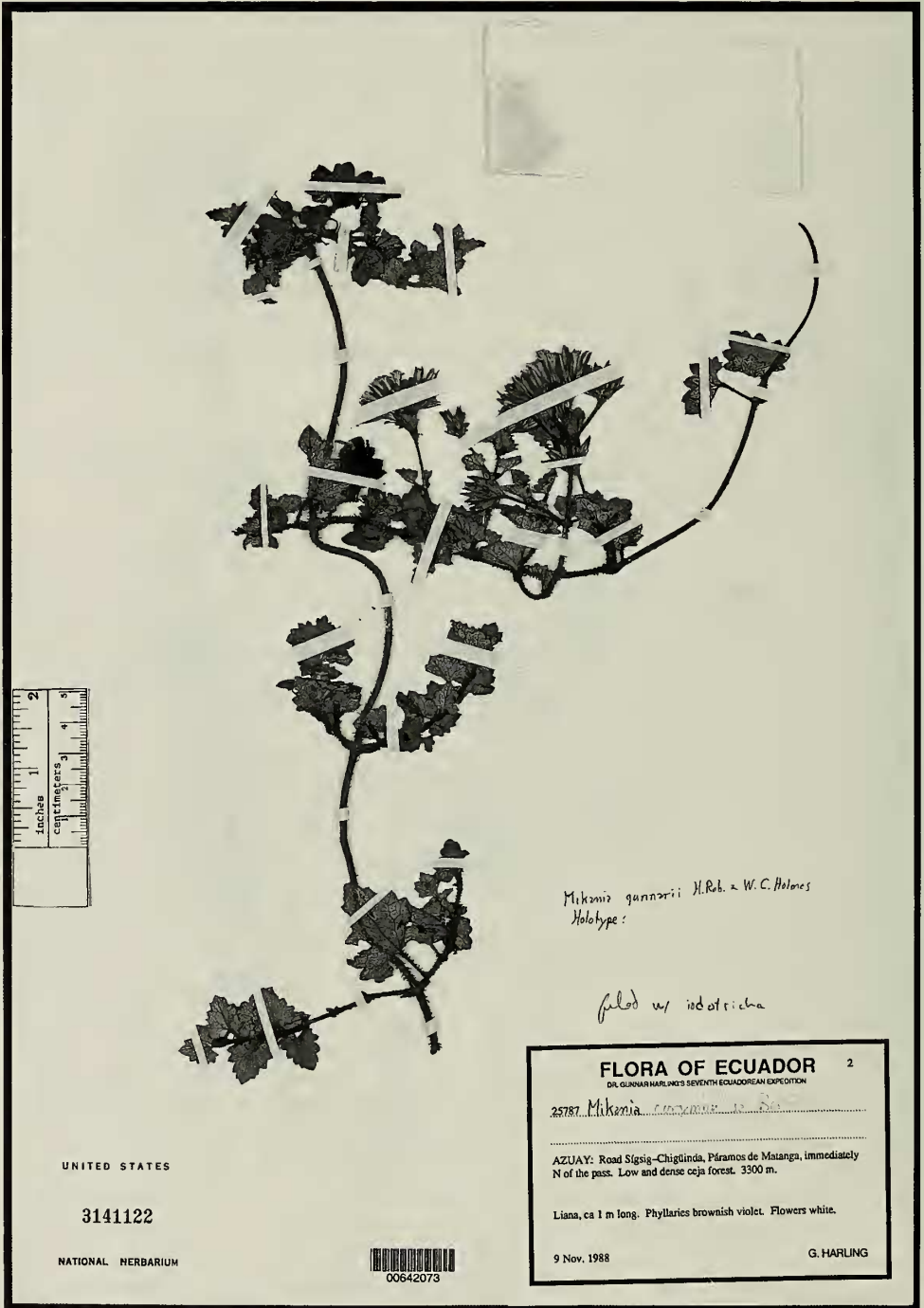


Fig. 6. *Mikania gunnarii* H. Rob. & W. C. Holmes, holotype, Harling 25787 (US).

leafy stems, spreading at ca. 90° angle, ending in dense corymbiform clusters; bracts foliiform, largest with petioles 5 mm long, blades ca. 12 mm long and wide, much reduced on branchlets with blades ca. 5 mm long; peduncles 1–5 mm long, hirtellous with reddish hairs. Heads mostly in groups of three, 10–12 mm high; subinvolucral bracts on lateral peduncles or at base of middle peduncle, narrowly elliptical, 4–6 mm long, obtuse to short-acute, hirtellous on margins and below on midvein; involucral bracts often reddish, narrowly oblong-lanceolate, 8–9 mm long, 1.5–2.0 mm wide, narrowly acute, puberulous outside. Florets with corollas white, rather carnosae, 7.0–7.5 mm long, glabrous, basal tubes narrowly cylindrical, ca. 4 mm long, throat ca. 1 mm long, lobes erect to somewhat spreading, oblong-lanceolate, 2.0–2.5 mm long, ca. 0.8 mm wide, proximal margins with crowded, minute papillae, cells short-oblong; anther thecae brownish, ca. 1.5 mm long; apical appendage triangular-ovate, ca. 0.6 mm long; style base and proximal shaft with many small papillae; style branches with short papillae. Achenes ca. 4 mm long, 5-costate, with sparse slender hairs; pappus whitish with some reddish tinges, 4.5–5.5 mm long, of 70–80 capillary, somewhat barbellate bristles, not broadened at tips.

Mikania gunnarii is known only from the type series. The habitat is cited as low and dense ceja forest. The species superficially resembles *M. violascens* (B. L. Rob.) R. M. King & H. Rob. of north Ecuador and southern Colombia; but the corollas have long basal tubes, short throats and lanceolate lobes. The leaves also differ by the lack of groupings of hairs on the adaxial surface and the lack of evident glandular dots.

Mikania houstonioides H. Rob. &
W. C. Holmes, sp. nov.

Fig. 7

Type.—Ecuador. Pichincha: Carretera Quito–San Juan–Chiriboga–Empalme, km 59, a 15 km al NW de la carretera, 1700–

2000 m., 23 Sep 1986, *Zak 1284* (holotype US).

Ad *M. hitchcockii* similis sed in caulibus non lanulatis differt.

Herbaceous, moderately branched vines; stems yellowish to brown, terete to subhexagonal, striated, spreading densely puberulous, glabrate on older parts; nodes with only transverse line; internodes mostly 3–14 cm long, with solid pith. Leaves opposite, petioles slender, 0.5–2.0 cm long; blades ovate to oblong-ovate, 4–13 cm long, 1.3–6.0 cm wide, base rounded to broadly obtuse, margins entire, apex usually rather abruptly acuminate, surfaces glabrate, puberulous on veins, veinlets prominulous, abaxially with numerous glandular dots; two pairs of prominent secondary veins arching outward and upward from basal 0.5–1.0 cm of blade, distal stronger pair spreading at ca. 35° angle, weaker pair following close to margins, tertiary veins rather regularly transverse, veinlets in close prominulous reticulum. Inflorescences pyramidal panicles with pyramidal branches and, often short, somewhat loose, tapering, racemiform branchlets; only primary bracts foliiform, bracts of branches linear to lanceolate, 3–9 mm long; heads of racemiform branchlets usually close, but not touching; peduncles 1–3 mm long. Heads 4–6 mm high; subinvolucral bract borne at base of peduncle, ovate-lanceolate, 1.5–2.0 mm long, minutely puberulous; involucral bracts oblong with rounded tips, 3.0–4.5 mm long, ca. 0.8 mm wide, outer pair minutely puberulous, narrowly gibbous at base. Florets with corollas whitish, 2–3 mm long, basal tube narrow, 1.0–1.5 mm long, limb narrowly campanulate, smooth or with very weak undulations on lower inside surface, throat ca. 1.5 mm long, lobes ca. 0.3 mm long and wide, with few glands outside, cells oblong, mostly with sinuous walls; anther thecae brownish, ca. 0.8 mm long; apical appendage ca. 0.15 mm long, oblong-ovate; style base glabrous; style branches with short papillae. Achenes ca. 2 mm long, 5-costate, glabrous or with few

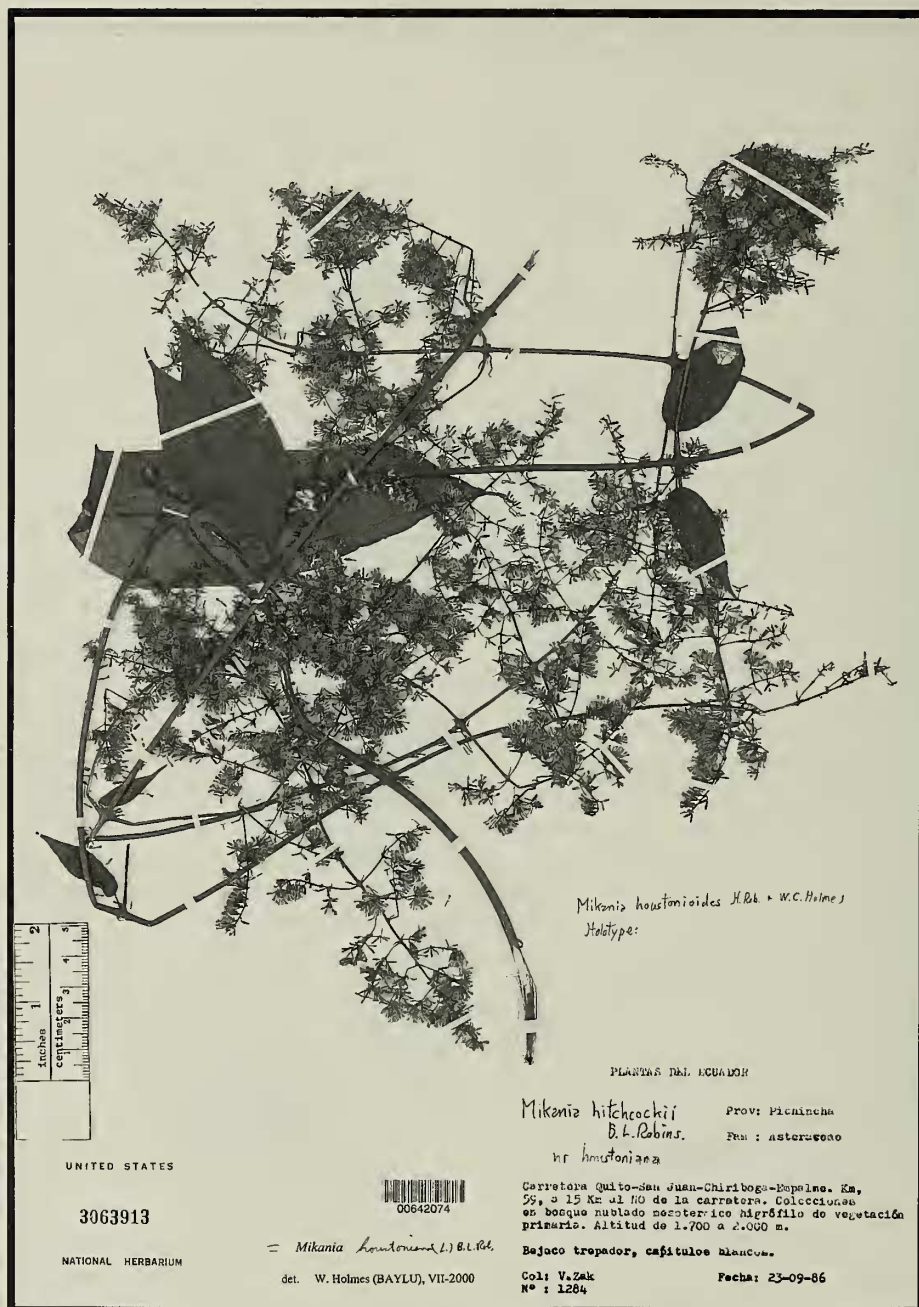


Fig. 7. *Mikania houstonioides* H. Rob. & W. C. Holmes, holotype, Zak 1284 (US).

glandular dots; pappus sordid whitish to brownish, 2.5–3.5 mm long, of ca. 35–40 capillary bristles mostly in one series, apices slightly broadened.

Mikania houstonioides is known only

from the type collection in mesothermic hygrophilic primary cloud forest. It seems closely related to the mostly Mexican and Central American *M. houstoniana* (L.) B. L. Rob. that has range extensions suppos-

edly southward in the Andes to Bolivia. The new Ecuadorian species differs from most more northern species by the shorter tapering racemiform branches, the more sordid to brownish pappus, the apparently solid pith of the stem, and the lack of strong transverse undulations inside the corolla throat. The species is more like the endemic *M. hitchcockii* B. L. Rob. of Ecuador in its short tapering racemiform branches and the smooth or weakly undulating inner surface of the corolla, but the latter has lanulate pubescence on the stems. *Mikania leiostachya*, a species closely related to *M. houstoniana*, occurs in Ecuador, and has the characteristic fistulose stems and transverse undulations in the corolla. *Mikania houstonioides* closely resembles *M. pichinchensis* Hieron. in habit, but the leaves of the new species have long and narrow acuminate tips, and the leaf surfaces have rather transverse tertiary veins and a small network of prominulous veins.

Mikania matezkii H. Rob. &
W. C. Holmes, sp. nov.
Fig. 8

Type.—Ecuador. Zamora-Chinchipec: Area of ECSF (Estación Científica San Francisco) Research Station, approx. 30 km away from the city of Loja on highway towards Zamora, 3°58'18"S, 79°04'44"W, 2000 m, 5 Sep 2001, *Matezki* 386 (holotype US, isotypes LOJA, QCNE, UBT).

A speciebus omnibus in laminis foliorum coriaceis late oblongis apice subrotundatis et in ramis inflorescentiarum laxe spiciformibus differt.

Sparingly branched vines; stems pale brownish, terete, glabrous; with only transverse line on side of node; internodes 15 cm or more long, not fistulose. Leaves opposite, petioles dark brown, short, 0.5–1.5 cm long, stout, terete; blades coriaceous, broadly elliptic to oblong, 4.5–11.5 cm long, 2.5–8.0 cm wide, base rounded, margins entire, apex short-obtuse to rounded with slight mucro, surfaces glabrous, with glandular dots; venation subpinnate, with two pairs of arching secondaries from basal

$\frac{1}{3}$ – $\frac{1}{4}$ of blade. Inflorescence rather densely pyramidal with spiciform branches and branchlets, heads rather loosely disposed, not contiguous; branches with sparse minute hairs. Heads sessile to subsessile, ca. 7 mm high; subinvolucral bracts on branchlets, narrowly subulate, ca. 1.8 mm long; involucral bracts narrowly oblong-elliptic, 5.0–5.5 mm long, ca. 1 mm wide, narrowly obtuse, mostly glabrous, not noticeably gibbous at base. Florets with corollas whitish to cream-colored, ca. 4 mm long, glabrous, tube stout, thick-walled, ca. 1.8 mm long, limb abruptly narrowly campanulate, throat ca. 1 mm long, smooth inside, lobes ovate-oblong, ca. 1 mm long, with narrow cells; anther thecae pale, ca. 1.1 mm long; anther appendages pale, ca. 0.2 mm long, 0.18 mm wide, oblong-ovate; style base stout, abruptly constricted at nectary, smooth; style branches with dense, short papillae. Achenes 2.5–3.0 mm long, 5-ribbed, puberulous with uniseriate hairs and glandular dots mostly near pappus; pappus whitish, 3.0–3.5 mm long, of ca. 45 capillary bristles, with enlarged tips and round-tipped apical cells.

Mikania matezkii is named for the collector, Steffen Matezki, who is studying the ecological function of woody and herbaceous vines as part of an analysis of virgin and disturbed tropical montane forest systems in southern Ecuador. The material is cited from secondary montane tropical rain forest and is referred to as a slightly woody liana. The leaf form is described as very variable in different light environments, but is evidently rather consistently coriaceous and broadly oblong with a nearly rounded slightly mucronate tip. The rather densely pyramidally paniculate inflorescences with laxly spiciform branches are also distinctive.

Mikania ollgaardii H. Rob. &
W. C. Holmes, sp. nov.
Fig. 9

Type.—Ecuador. Chimborazo: Road ca. 10 km NE of Alao, at Cuspipaccha, 01°48'S, 78°26'W, ca. 3500 m, 6 May 1982,



HOLOTYPE of:
Mikania matezkii H. Rob. & W.C. Holmes
 det. Harold Robinson (US)

Flora of Ecuador

- Province of Zamora Chunchipe -

Mikania matezkii H. Rob. & W.C. Holmes
 holotype

Area of ECSI (Esteron Cientifica San Francisco) Research Station, approx. 30 km away from the city of Loja on highway towards Zamora (2° 58' S, 79° 04' W)

Altitude: 2000 m montane tropical rain forest (secondary forest)

Fls. Lvs. white to cream (lvs. very variable leaf form (in different light environments))

Leg. Stefan Matzka No. 386 date 05/09/01

Collection realized for PhD-Thesis "Ecological function of woody and herbaceous vines" within the Project "Analysis of Vigna and Disturbed Tropical Montane Forest Systems". Field work was funded by DFG (German Research Foundation) Project 11 496/1-1. For contact: stefan.matzka@uni-bozen.it or matzka@botanik.uni-bozen.it

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Fig. 8. *Mikania matezkii* H. Rob. & W. C. Holmes, holotype, *Matezki* 386 (US).



Fig. 9. *Mikania ollgaardii* H. Rob. & W. C. Holmes, holotype, Øllgaard, Holm-Nielsen, Andreasen, Larsen, Kvist, & Jensen 38154 (US).

Øllgaard, Holm-Nielsen, Andreassen, Larsen, Kvist, & Jensen 38154 (holotype US; isotypes AAU, QCA, QNA).

Ad *M. chimboracensem* similis sed in foliis minoribus breviter petiolatis, in corollis minoribus, et in lobis saepe triplinerviatis distincta.

Rather coarse, branching, scandent shrubs; stems brownish, terete to subhexagonal, weakly striated, densely hirtellous; nodes surrounded by herbaceous, hirtellous disc that is strongly toothed on margin; internodes to 12 cm long, fistulose. Leaves opposite, petioles slender, 0.5–1.7 cm long; blades thinly herbaceous, ovate, 1.4–5.5 cm long, 1.2–ca. 3.0 cm wide, base subtruncate to cordate, with acumination at petiole often angular, margins rather closely crenate-seriate, apex shortly acute, adaxial surface densely pilosulous, with few, scattered glands, abaxial surface puberulous, especially on veins, with many glandular dots, veins and veinlets prominent; subquinnervate from base, with secondary veins spreading at 25–35° angle, and strong tertiary veins spreading at 45–75° angle. Inflorescences corymbiform on leafy branches; branchlets densely hirtellous to tomentellous with brownish hairs, bracts densely haired abaxially; peduncles 5–8 mm long. Heads usually in groups of three, ca. 12 mm high; subinvolucral bract of central head at base of peduncle, rather large, sessile, ovate, to 10 mm long, 4 mm wide; bracts of lateral heads at middle of peduncles, narrowly elliptical, 4–5 mm long, glabrous adaxially, densely puberulous abaxially; involucral bracts narrowly oblong-elliptical, 8–11 mm long, 1.3–2.0 mm wide, apices obtuse to rounded, moderately gibbous at base, densely puberulous outside. Florets with corollas whitish, 6–8 mm long, mostly glabrous outside, often with extra veins running from base into centers of lobes, basal tube 2–3 mm long, throat narrowly campanulate, with basal enlargement small but abrupt, 1.5–2.5 mm long, lobes strongly reflexed and partially coiled with age, linear-lanceolate, 2.0–2.5 mm long, with few hairs

near tips, small papillae along distal margins, cells short-oblong; anther thecae brownish, ca. 1.8 mm long; apical appendage oblong-ovate, ca. 0.3 mm long; style base smooth or with sparse, minute papillae; style branches with short papillae. Achenes 3.5–4.5 mm long, 5–6-costate, with few, fine hairs mostly near base and top; pappus sordid whitish, mostly 5.5–6.0 mm long, of ca. 80 capillary bristles in 1–2-series, not broadened distally.

Paratype.—Ecuador. Chimborazo: Road/trail from campsite above Río Algo (8.5 km from Guardiania Alais by road from Alao), NNE to pass/continental divide (via old route to Huamboya), 3350–3550 m, 20 May 1990, King & Judziewicz 10171 (MO, US).

Mikania ollgaardii has been collected only from the Alao area of Chimborazo at ca. 3500 m. The habitat of the type was elfin forest on steep slope, dominated by *Escallonia*, *Weinmannia*, *Osteomeles*, and *Gaiadendron*, understory dominated by *Miconia* and *Centropogon*. The species is another with nodal discs or fimbriae, and corymbiform inflorescences. As such, the species resembles *M. chimboracensis* Hieron. from the same area of Ecuador. The present species differs from the latter by the smaller, shorter-petiolate leaves, and the smaller corollas with narrower, centrally veined lobes. There is a superficial resemblance to *M. cristata* B. L. Rob. of Central America, but the latter has corolla lobes cut nearly to the base of the throat and papillae on the inner surface at the base of the lobes. The latter also lacks the median veins in the lobes.

Mikania pruskii H. Rob. &
W. C. Holmes, sp. nov.
Fig. 10

Type.—Ecuador. Azuay/Morona-Santiago border: Páramo del Castillo and surrounding forested areas (crest of the eastern Cordillera on trail between Sevilla de Oro and Mendez, near the laguna, 9000–11,000



Fig. 10. *Mikania pruskii* H. Rob. & W. C. Holmes, holotype, Camp E-5114 (US).

ft., 29 Aug 1945, *Camp E-5114* (holotype US, isotype NY).

Ad *M. stuebelii* et *M. jamesonii* in habitus similis sed in caulibus hispidulis non fistulosis, in capitulis pedunculatis et in stylis in parte hirtellis differt.

Rather coarse, somewhat woody, branching vines, branches spreading at ca. 90° angle; stems brown, terete, densely hispidulous to hirtellous with short, reddish, spreading or somewhat retrorse hairs; nodes with only transverse line; internodes mostly 4.5–10.0 or more cm long, with solid pith. Leaves opposite, petioles 0.5–1.5 cm long; blades leathery, ovate, 3–5 cm long, 2.0–3.5 cm wide, base rounded, margins with few remote denticulations, apex short-acute, both surfaces nitid and scabridulous, more minutely scabridulous adaxially, abaxial surface also with minute puberulence and glands; subtriplinervate with strongest secondary veins spreading at 35–40° angle from 3–5 mm above base of blade, weaker subparallel secondary veins nearer basal margins. Inflorescences a narrowly pyramidal thyrsoid panicle with thyrsoid branches; primary internodes of decrescent lengths, 3.5–1.0 cm long, densely hirtellous; basal primary bracts foliiform with blades to 3 cm long, distal primary bracts and secondary bracts narrowly elliptical to linear, 7–4 mm long; branches and larger branchlets spreading at ca. 90° angle; heads in groups of three; peduncles 1–3 mm high, hirtellous. Heads 7–8 mm long; subinvolucral bract not seen on central heads, at or near bases of lateral heads, linear lanceolate, 2.5–3.0 mm long, puberulous mostly on margins; involucral bracts reddish tinged, oblong, 4.5–5.5 mm long, 1.0–1.2 mm wide, apices rounded, base moderately gibbous, stiffly puberulous or scabridulous outside. Florets with corollas creamy white, ca. 5 mm long, with numerous, minute, slender hairs and rather elongate minutely glandular hairs scattered over outer surface, denser on lobes, basal tube narrow, ca. 1.5 mm long, throat broadly campanulate, gradually broadened below, cylindrical above,

ca. 2.5 mm long, lobes oblong-ovate, ca. 1.0–1.3 mm long, ca. 0.8 mm wide, densely papillose with small, bulging cells along margins, lobe cells subquadrate; anther thecae purplish, ca. 1.8 mm long; apical appendage rounded, ca. 0.2 mm long; style base smooth or weakly papillose, shaft and outer surfaces of branches at base hirtellous with septate hairs; style branches distally with short papillae. Achenes ca. 4 mm long, 5-costate, with few, scattered, slender hairs, minute glands mostly near pappus; pappus sordid white, 4.5–5.0 mm long, of 40–45 capillary bristles in ca. 2 series, longer bristles broadened distally.

Mikania pruskii is known only from the type collection. The species resembles *M. stuebelii* Hieron. and *M. jamesonii* B. L. Rob. in habit, but the stems have solid pith and hispidulous pubescence and the heads are pedunculate. The style is particularly distinctive in the hair-like papillae at the top of the shaft and on the bases of the outer surfaces of the branches. These hairs can be seen with the dissecting microscope. The plant is described by Camp on the label as "Vine. Stems rufous-pubescent. Lvs leathery; scabrid, deep green, nitid above; subscabrid, bright green, nitid below. Bracts pale green, often with reddish-purple tinge. Corolla cream-white, style branches greenish yellow, anthers purplish".

The species is named for John Pruski, formerly of the U.S. National Herbarium, Smithsonian Institution, who first called attention to the specimen that was originally distributed as *M. aristei* B. L. Rob.

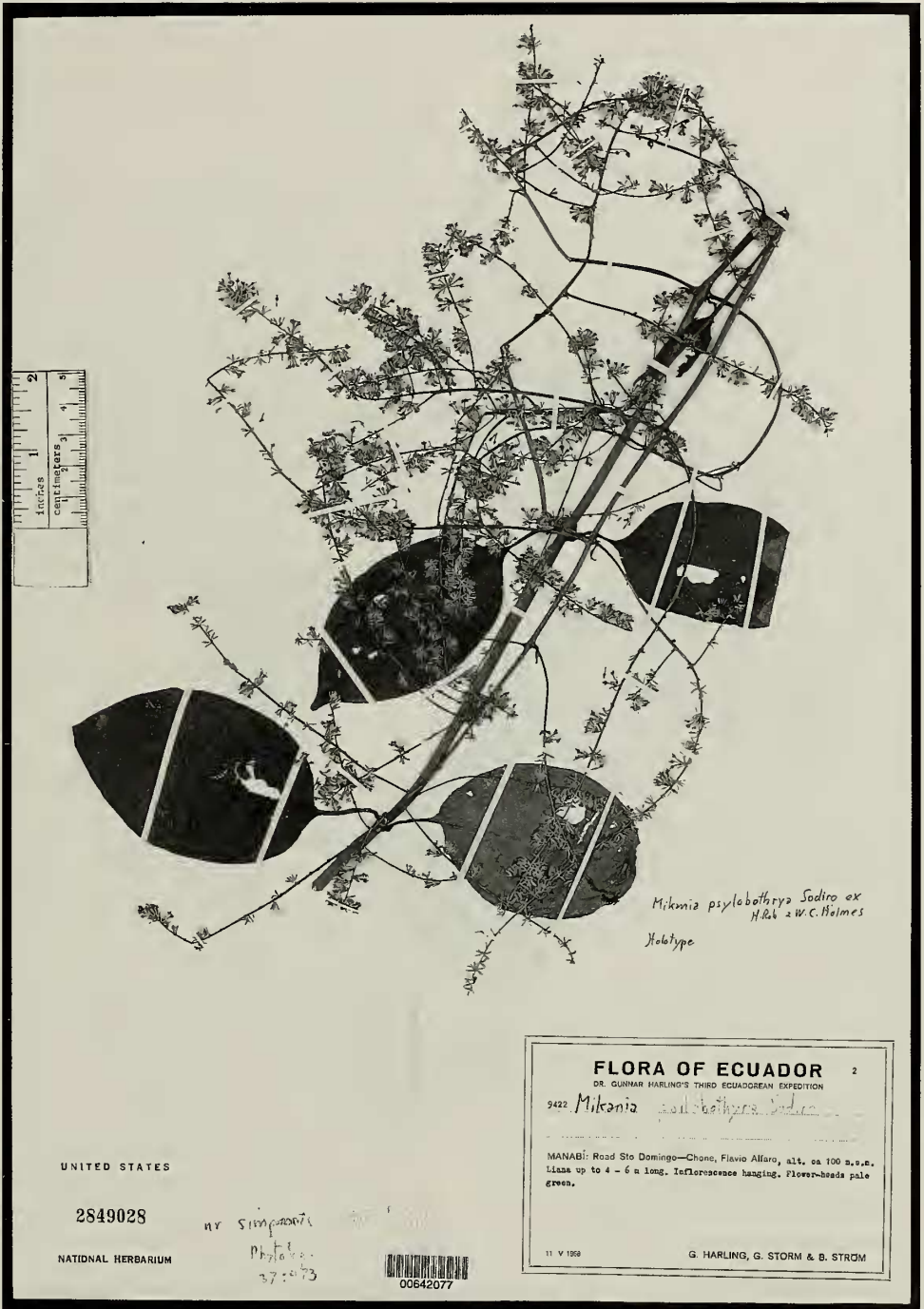
Mikania psylobothrya Sodiro ex H. Rob.

& W. C. Holmes, sp. nov.

Fig. 11

Type.—Ecuador. Manabí: Road Sto Domingo–Chone, Flavio Alfaro, ca. 100 m, 11 May 1968, *Harling, Storm, & Ström 9422* (holotype US, isotype GB).

In inflorescentis laxae spiciformibus et faucibus corollarum interne rugosis ad *M. klugii* et *M. simpsonii* similis sed in foliis



Mikania psylobothrya Sodiro ex
H. & B. & W. C. Holmes
Holotype

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FLORA OF ECUADOR 2
DR. GUNMAR HARLING'S THIRD ECUADOREAN EXPEDITION
9422 *Mikania psylobothrya* Sodiro
MANABI: Road Sto Domingo-Chone, Flavio Alfaro, alt. ca 100 m.s.n.m.
Liana up to 4 - 6 m long. Inflorescence hanging. Flower-heads pale
green.
11 V 1968 G. HARLING, G. STORM & B. STROM

Fig. 11. *Mikania psylobothrya* H. Rob. & W. C. Holmes, holotype, Harling, Storm, & Ström 9422 (US).

non ternatis et in limbus corollarum late campanulatis vel subhypocrateriformibus distincta.

Liana with stems to 4–6 m long, sparsely branched; stems terete to subhexagonal, striated, densely puberulous with brownish hairs; nodes with only transverse line between the broad and sometimes slightly rimmed petiole bases; internodes to ca. 11 cm long, fistulose. Leaves opposite, petioles 1.5–2.0 cm long; blade thinly herbaceous, oblong-ovate, mostly 8–12 cm long, 3.5–4.5 cm wide, base generally rounded, slightly acuminate at petiole, margins entire, apex short-acuminate, surfaces essentially glabrous, without glandular dots, few hairs on veins abaxially; subtriplinervate-pinnate, with two pairs of secondary veins from near base and from 1.0–1.5 cm above base, ascending at 45–60° angle, veinlets somewhat prominulous below. Inflorescence thyrsoid with loosely disposed, long, spiciform, puberulous branches and few short branchlets, heads borne 2–6 mm apart; bracts linear, to 6 mm long. Heads sessile, ca. 5 mm high; subinvolucral bract ovate, small, ca. 1 mm long; involucral bracts thin, narrowly oblong, 2.8–3.0 mm long, 0.6–0.8 mm wide, apices rounded, minutely but distinctly gibbous at base, minutely puberulous outside. Florets with corollas whitish, ca. 3 mm long, glabrous, basal tube slender, ca. 1.8 mm long, limb abruptly broadly campanulate, nearly salver-shaped, throat ca. 0.8 mm long, with transverse undulations on interior surface, lobes broadly oblong-ovate, ca. 0.5 mm long and wide, veins submarginal and appearing double, cells subquadrate; anther thecae brownish, ca. 0.6 mm long; apical appendage oblong-ovate, ca. 0.2 mm long; style base smooth; style branches with short papillae. Achenes ca. 1.5 mm long, 5-costate, with few short hairs and glands at base of pappus; pappus whitish to sordid white, ca. 3 mm long, of ca. 35 capillary bristles in one series, somewhat broadened tips with blunt cells.

Paratypes.—Ecuador. Esmeraldas: Ad

viam Ibarra–Esmeraldas, Aug 1901, *Sodi* 23 (B, destroyed, as *M. psylobothrya* Sodiro, ined., photo US). Pichincha: Santo Domingo de los Colorados, 19 May 1955, *Asplund 16423* (S).

Mikania psylobothrya is validated for three specimens from the northwestern lowlands of Ecuador. It seems related to a group of species on the eastern side of the Andes that includes *M. klugii* B. L. Rob. and *M. simpsonii* W. C. Holmes & McDaniel. All three species share similar general habits with long, lax spiciform branches of the inflorescence, and the three all have transverse undulations on the inside of their corolla throats. The present species is distinct by the combination of opposite rather than ternate leaves and a broadly campanulate, almost salverform corolla limb.

Mikania rimachioides H. Rob. &
W. C. Holmes, sp. nov.

Fig. 12

Type.—Ecuador. Carchi: Tulcán, Reserva Etnica Awá, Parroquia El Chical, Centro Gualpi Medio, Río Canumbí, 01°02'N, 78°15'W, 1150 m, 19–28 Feb 1993, *Grijalva, Aulestia, & Taicuz 565* (holotype US; isotypes MO, QCNE).

In habitis vegetativis et in fabricis capitulorum ad *M. rimachii* similis sed in inflorescentiis racemiformibus valde distincta.

Rather flexuous moderately branching vines, branches spreading at 90° angle; stems, brown, terete, weakly striated, minutely puberulous; nodes with narrow connecting strip between petioles; internodes to 14 cm long, with solid pith. Leaves opposite, petioles slender, 2.8–5.0 cm long; blades herbaceous, broadly ovate, mostly 6–11 cm long, 4.3–7.5 cm wide, base broadly rounded to shallowly cordate, with small acumination at petiole, margins minutely remotely cuspidate-denticulate, apex acuminate, adaxial surface glabrous, abaxial surface with scattered glandular dots; 3- or 5- to weakly 7-nervate from near base,

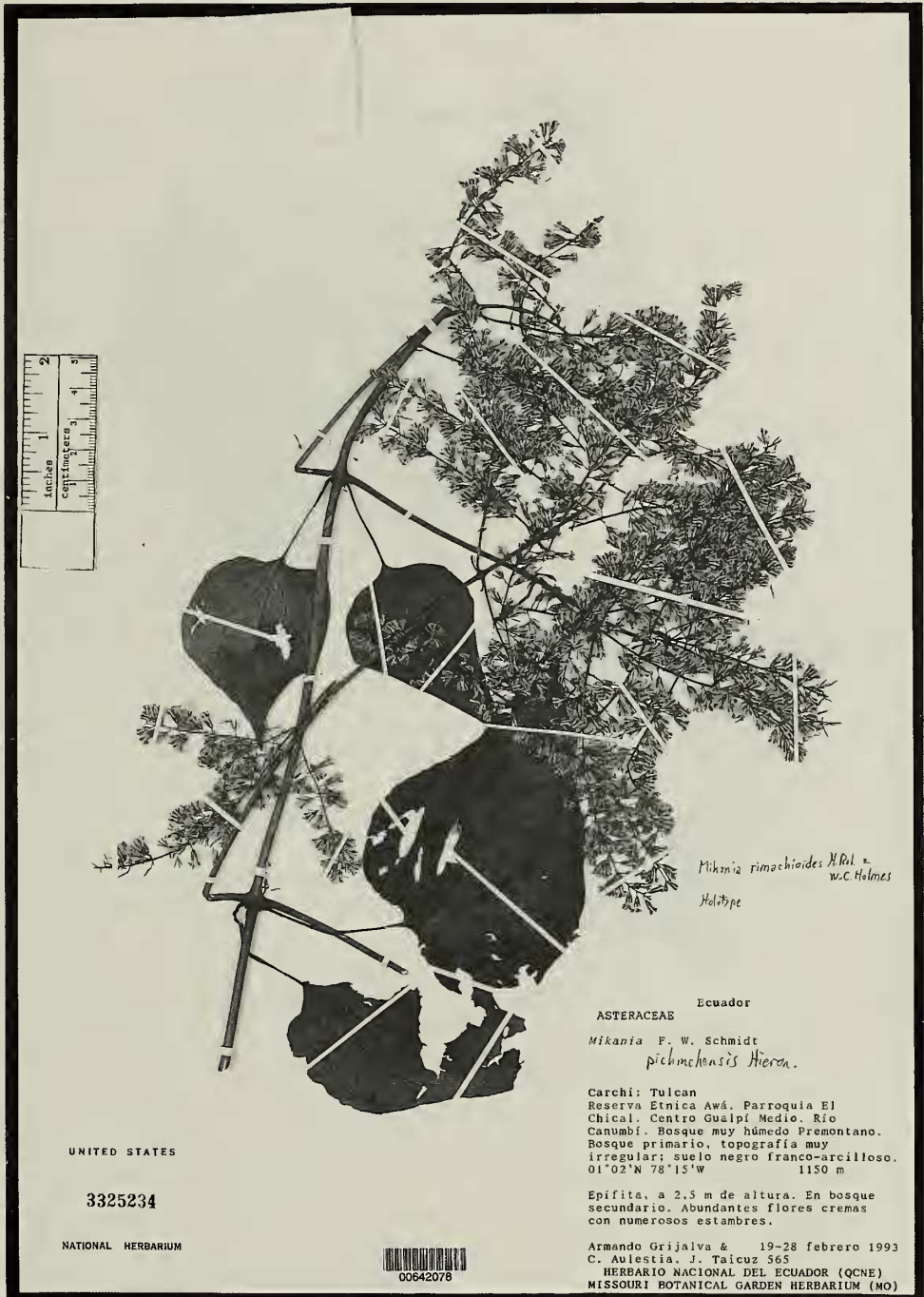


Fig. 12. *Mikania rimachtioides* H. Rob. & W. C. Holmes, holotype, Grijalva, Aulestia, & Taicuz 565 (US).

strongest arching secondary veins nearest midvein spreading at 15–20° angle, connivent distally. Inflorescences broad, pyramidal, thyrsoid panicles with thyrsoid branches and long racemiform branchlets; bracts linear, mostly 3–8 mm long; peduncles separated by 2–6 mm, 1–4 mm long, minutely puberulous. Heads ca. 6 mm high; subinvolucral bract at base of petiole, linear, ca. 1.5 mm long, often partially sheathing peduncle; involucral bracts oblong to oblong-elliptical, 3.5–4.0 mm long, ca. 1 mm wide, apex obtuse, bases of outer bracts scarcely gibbous, bases of inner bracts often with pointed basal projections, mostly glabrous on outer surface. Florets with corollas cream-colored, 3.2–3.5 mm long, with some minute hairs and glands mostly on distal part of tube, tube slender, ca. 2 mm long, limb abruptly very broadly campanulate, throat ca. 0.5 mm long, smooth inside, lobes oblong-ovate, ca. 1.8 mm long, 0.5 mm wide, glabrous outside, margins nearly smooth, cells oblong; anther thecae pale brownish, 0.8 mm long; apical appendage oblong-ovate, ca. 0.25 mm long; style base smooth; style branches with short but distinct papillae, sometimes with few glands outside. Achenes ca. 2 mm long, 5-costate, with few, minute hairs along costae, few glands at top; pappus sordid white, ca. 3.5 mm long, of 30–35 capillary bristles in one series, distinctly broadened distally.

Mikania rimachioides is known only from the type collection. The habitat is described as a very humid premontane forest with irregular topography. The particular plant is said to be an epiphyte to 2.5 m tall. The species resembles *M. rimachii* W. C. Holmes & McDaniel in the vegetative form and details of the heads, but differs strongly in the racemiform structure of the inflorescence.

Mikania sparrei H. Rob. &
W. C. Holmes, sp. nov.

Fig. 13

Type.—Ecuador. Zamora-Chinchipec, Zumbi, on northern border of Río Zamora,

ca. 900 m, 17 May 1967, *Sparre 16468* (holotype S, isotype S).

In foliis abrupte caudato-acuminatis et in nervis tertiariis transversis et in limbis corollarum interne transverse undulatis a *M. leiostachyam* similis sed in nodis disciferis distincta.

Coarse sparingly branched vines; stems brown, terete, glabrous or with minute papillae near nodes; nodes with shallowly lobed disk; primary internodes 10–12 cm long, narrowly fistulose; axillary branches with very short basal nodes 0.4–0.5 cm long, with pairs of small bract-like leaves 0.6–0.7 cm long, acuminate, second and third internodes ca. 8.5 cm long, with fully bladed leaves. Leaves opposite, petioles moderately stout, ca. 2.5 cm long; blades thickly herbaceous, blades of primary leaves broadly ovate, 14–15 cm long, 10–11 cm wide, base broadly rounded to subtruncate, margins entire, apex abruptly contracted into linear apex 1.5–2.0 cm long, surfaces glabrous, without glandular dots, adaxial surface dark green, asperous with many, minute papillae, abaxial surface paler green, with only slight irregular bumps; venation 7-nervate, with three pairs of arching veins diverging from basal 1.0–1.2 cm of blade, distal strongest pair diverging at ca. 40° angle, reaching nearly to base of acumination, tertiary veins mostly in close transverse pattern; distal primary leaves narrowly ovate, 9–12 cm long, 3–4 cm wide, acute to short-acuminate at base, apex more gradually long-caudate-acuminate. Median branch leaves with petioles 0.7–1.0 cm long; blades oblong-ovate, mostly 5.0–6.5 cm long, 2.5–3.0 cm wide, apex with rather abrupt caudate acumination 0.5–1.0 cm long. Inflorescences on axillary branches, pyramidally paniculate with pyramidally paniculate branches and long, spiciform tips and branchlets; branches and branchlets puberulous with small, dark hairs with minute, glandular tips; heads slightly separated in long, spiciform series, sessile in axils of small, ovate subinvolucral bracts ca. 0.5 mm long. Heads ca. 3 mm high; involucral

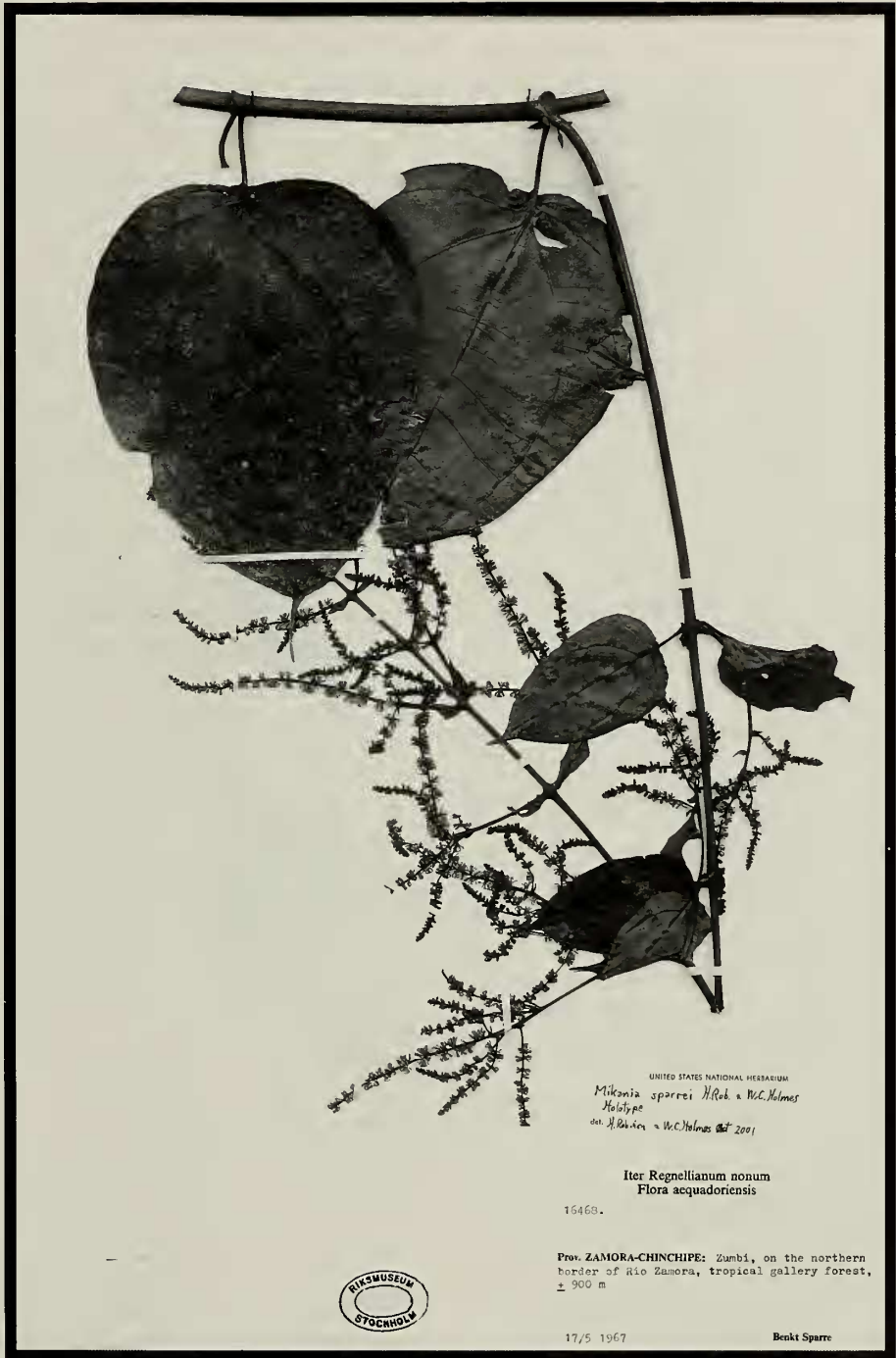


Fig. 13. *Mikania sparrei* H. Rob. & W. C. Holmes, holotype, Sparre 16468 (S).

bracts narrowly oblong, ca. 2.5 mm long, ca. 0.8 mm wide, apices rounded, bases slightly swollen, outside minutely puberulous, denser distally. Florets with corollas whitish, ca. 2.2 mm long, with few, isolated glands on distal tube and tips of lobes, basal tube ca. 1 mm long, limb narrowly campanulate with prominent transverse undulations on lower inside surface, throat ca. 0.7 mm long, lobes triangular, ca. 0.4 mm long; anther thecae brownish, ca. 0.6 mm long, appendages ovate, ca. 0.15 mm long; style base glabrous; style appendages with short papillae. Achenes 5-costate, immature length ca. 1 mm, with few glands near pappus; pappus whitish, ca. 2.2 mm long, of 35–40 capillary bristles in one series, with broadened tips.

Paratype.—Peru. Amazonas: Bagua Prov., Distrito Imaza, Comunidad Aguaruna de Yamayakat, 300 m, 14 Jul 1994, *Díaz, Salomón, Katip, & Peña 6854* (MO, US).

Mikania sparrei is known only from the two collections from nearly adjacent areas of southern Ecuador and northern Peru. The type material came from a tropical gallery forest along the Río Zamora in southern Ecuador. The species is evidently related to *M. leiostachya*, but differs in the nodal disks. Another relative that has nodal disks is *M. campii*, described above, which has smaller, narrower, more gradually acuminate, gland-dotted leaves without a regular transverse pattern of tertiary veins, and also has larger heads. The short basal internodes of the branches in *M. sparrei* seem to be distinctive. The type collection has the broad primary leaves with abruptly caudate tips, while the Peruvian material has narrower less abruptly acuminate primary leaves evidently from nearer the tip of a main stem. It seems likely that most collections would lack the larger more basal primary leaves and would have only the narrow distal type.

Mikania websteri H. Rob. &
W. C. Holmes, sp. nov.

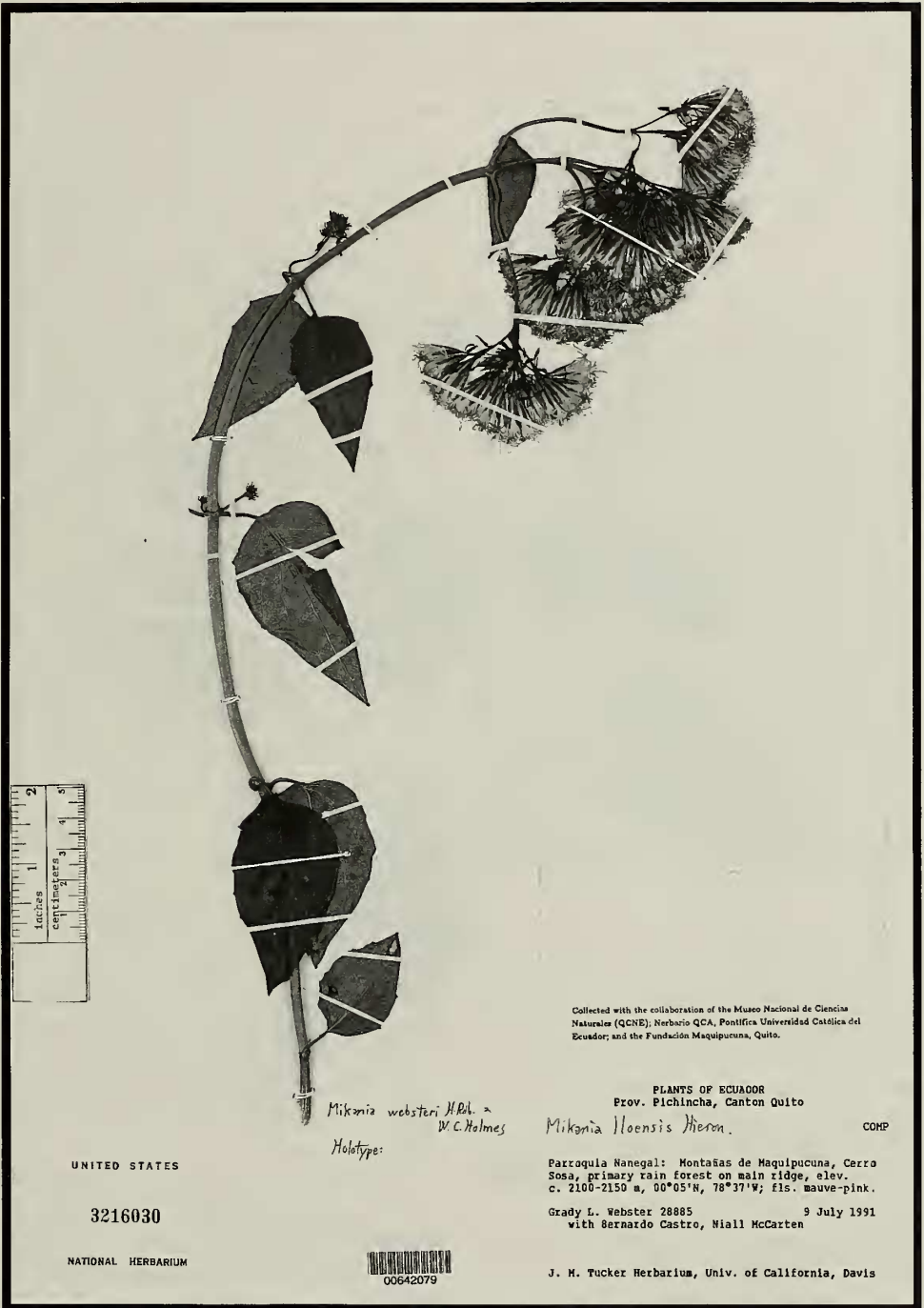
Fig. 14

Type.—Ecuador. Pichincha: Canton Quito, Parroquia Nanegal, Montañas de Ma-

quipucuna, Cerro Sosa, 00°05'N, 78°37'W, ca. 2100–2150 m, 9 Jul 1991, *Webster, Castro, & McCarten 28885* (holotype US; isotypes DAV, QCA, QCNE).

In habitis ad *M. lloensem* similis sed in caulibus minute retrorse spiculiferis, in lobis corollarum elongatis et in tubis et faucibus corollarum tubiformibus ca. 1.5–2.0 mm et ca. 3 mm longis distincta.

Coarse, sparsely branching vines; stems pale brownish, terete, weakly striated, minutely retrorsely spiculiferous; nodes with only transverse line; internodes to 9 cm long, fistulose. Leaves opposite, petioles 1.0–1.2 cm long; blades herbaceous, ovate, 4–7 cm long, 2.5–3.8 cm wide, base broadly rounded, margins remotely denticulate near widest part, apex acute and slightly cuspidate, adaxial surface sparsely and minutely scabridulous, spiculiferous abaxially, more densely on veins, without evident glandular dots; venation subtriplinervate from 0.7–1.4 cm above base of blade, strong arching secondary veins spreading at 25–30° angle, weaker secondary veins nearer base and often with strong tertiary vein from triplinervation. Inflorescence broadly corymbiform, with pair of widely spreading, elongate, distally corymbiform branches at base; branches retrorsely spiculiferous; bracts nearly linear, scarcely petiolate, 6–10 mm long, branchlets with heads in groups of three, with peduncles 2–8 mm long. Heads ca. 14 mm high; subinvolucral bract at or near base of lateral heads, at base of peduncle of central head, linear, 5–6 mm long; involucral bracts ca. 10 mm long, 2.5 mm wide, with margins and tips tinged with red, apices acute, bases weakly gibbous, mostly glabrous outside, pilosulous near tips. Florets with corollas mauve-pink, rather carnosae, ca. 11 mm long, glabrous outside, basal tube 1.5–2.0 mm long, throat ca. 6 mm long, proximal part of throat appearing to be continuation of narrow tube, ca. 3 mm long, distal throat narrowly funnel-form, ca. 3 mm long; lobes widely spreading, lanceolate, ca. 3 mm long, ca. 1 mm wide, smooth inside, cells short-oblong; an-



Mikania websteri H. Rob. & W.C. Holmes
Holotype:

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Fig. 14. *Mikania websteri* H. Rob. & W. C. Holmes, holotype, Webster, Castro, & McCarten 28885 (US).

ther thecae pale brownish, ca. 2.3 mm long; apical appendage broadly oblong-ovate, ca. 0.3 mm long and wide; nectary elongate; style base with few minute papillae; style branches with short papillae. Achenes 5.5–6.0 mm long, 5-costate, glabrous; pappus whitish, mostly 7–8 mm long, of ca. 100 capillary bristles 2–3-seriate, tips not broadened.

Paratype.—Ecuador. Tungurahua: Cordillera de Llanganates, near junction of Río Golpe and Río Sangarinas (Desaguadero), 3000 m, 25 Nov 1939, *Asplund* 9872 (S).

Mikania websteri is known only from two collections. The type collection is from primary rainforest on a ridge above Quito. The paratype is from farther south in Tungurahua. The material of both specimens was initially determined as *M. lloensis*, which has short corolla lobes and a stem pubescence of longer hairs instead of short spicules. A unique feature of the type is the way the filaments extend well down into what seems to be the basal tube of the corolla. The basal tube and lower throat are more distinct in the paratype.

Mikania yanacochensis H. Rob. &
W. C. Holmes, sp. nov.

Fig. 15

Type.—Ecuador. Zamora-Chinchipec: Area of Finca San Ramon de Yanacochoa, km 11 on highway from Loja towards Zamora, 03°59.275'S, 79°09.461'W, 2400 m, 28 Oct 2001, *Matezki* 432 (holotype US, isotypes LOJA, QCA, QCNE, UBT).

Ad *M. aschersonii* simila sed in laminis foliorum pubescentioribus latius ovatis base late rotundatis vel subtruncatis differt.

Slightly woody vines; stems reddish-brown, terete, weakly striate, densely patentely or retrorsely hispidulous, hairs antrorse on smaller branches; with only minutely fringed transverse line across nodes; internodes ca. 20 cm or more long, narrowly fistulose. Leaves opposite, petioles slender, 1.0–3.5 cm long; blades thinly herbaceous, ovate, 6–11 cm long, 2.5–5.7 cm

wide, base generally rounded or subtruncate, scarcely acuminate at petiole, margins entire, apex narrowly acuminate, adaxial surface densely pilosulous, scarcely denser on veins, abaxial surface densely puberulous on veins and veinlets, with yellowish glandular dots; venation quinquinervate from 3–5 mm above base, distal pair reaching to distal $\frac{1}{6}$ of blade. Inflorescence pyramidal with corymbiform branches and branchlets, with small foliiform bracts at lowest nodes; branches densely puberulous. Heads sessile or subsessile in groups of three to five, 8–9 mm high; subinvolucral bract to one side of central head, on outer side of lateral heads, elliptic to ovate, 2.0–2.5 mm long; involucral bracts narrowly oblong, ca. 5 mm long, 1.0–1.2 mm wide, with rounded to subtruncate, densely puberulous tips, strongly gibbous at base. Florets with corollas whitish, ca. 5 mm long, tube short, thick-walled, ca. 1 mm long, throat abruptly, narrowly, cylindrical-campanulate, 3.5 mm long, lobes short-triangular, ca. 0.8 mm long, with hairs and glandular dots outside, densely papillose on margins and in broad marginal band inside; anther thecae pale, ca. 1.5 mm long; anther appendage oblong-ovate, ca. 0.25 mm long and wide; nectary cylindrical, ca. 0.7 mm long; style base slender, glabrous, smooth; style appendages densely papillose with short papillae. Achenes ca. 4 mm long, narrow, 5-ribbed, puberulous with uniseriate hairs mostly in upper half; pappus whitish, 4.0–4.8 mm long, of 30–35 capillary bristles, not or scarcely broadened at tips, apical cells acute.

Mikania yanacochensis is known only from the type collection. The habitat is described as secondary montane tropical rain forest. The species might be a member of the *M. aschersonii* Hieron. relationship but differs by its stronger pubescence and broader leaves with more truncate bases, and the more strongly corymbiform clusters of heads. The inflorescence, with its pyramidal shape, corymbiform branchlets, and heads usually in clusters of three, resembles



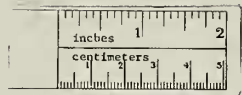
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NATIONAL HERBARIUM



HOLOTYPE of:
Mikania yanachocensis H. Rob. & W.C. Holmes
 det. Harold Robinson (US)



Flora of Ecuador
 - Province of Zamora-Chinipe -
 Fam.: Asteraceae
Mikania yanachocensis H. Rob. & W.C. Holmes
 det.: holotype date of det.:
 Area of Finca San Ramon de Yanachocha in Kilometer 11 on highway from Loja
 towards Zamora (S 03° 59.275' W 079° 09.461')
 altitude: 2400 m. montane tropical moist forest (secondary vegetation)
 Obs.: Slightly woody liana, fruit in flouriscescences present
 Leg: Stefan Mutezki No.: 432 date: 28.10.01
Collection method for Plant DNA: "A longitudinal section of woody part between clasp" within the
 Project "Analysis of Legume and Disjuncted Tropical Mountain Forest Biomes". This work was
 funded by INIA-Ciudad Bolivar's Universidad Politecnica del Estado (UPEL).
 For further information contact with my results at: matezki@bolivar.com

Fig. 15. *Mikania yanachocensis* H. Rob. & W. C. Holmes, holotype, Mutezki 432 (US).

the geographically more distant *M. filgueirasi* R. M. King & H. Rob. of Brazil, but the latter has much broader and blunter involucre and subinvolucre bracts.

Mikania zamorae H. Rob. &
W. C. Holmes, sp. nov.
Fig. 16

Type.—Ecuador. Zamora-Chinchipec: Road from Loja to Zamora, km 12–14, 2800 m, 18 Nov 1961, *Dodson & Thien 1352* (holotype US, isotype SEL).

In habitis ad *M. featherstonei* spurie similis sed in laminis foliorum cordatis prope basem triplinerviatis, in inflorescentiis dense corymbiformibus, in faucibus corollarum anguste infundibularibus, et in columnis stylorum dense longe papillosis distincta.

Rather coarse, moderately branched vines; stems terete, densely, minutely, and somewhat retrorsely hispidulous with stiff, often dark reddish hairs; nodes with flaps on sides that are minute to rather obvious; internodes 2–8 cm long, narrowly fistulose. Leaves opposite, petioles 0.4–2.3 cm long; blades subcoriaceous, broadly ovate, 1.5–ca. 5.0 cm long, 1.2–2.2 cm wide, base subtruncate to cordate, margins crenate-dentate to somewhat lobate at broadest part, apex obtuse to subacute, adaxial surface densely puberulous with brownish hairs, with few scattered glands, abaxial surface paler between veins, sparsely puberulous and with glandular dots, veins densely antrorsely hispidulous with dark hairs; triplinervation from or very near base, arching secondary veins spreading at 25–30° angle, connivent distally. Inflorescences terminal on leafy stems and branches, densely corymbiform; branches densely hirtellous; peduncles 0–5 mm long, often in groups of three or four. Heads ca. 10 mm high; subinvolucre bract at base of heads or in central heads at base of peduncle, sessile or subsessile, elliptical, ca. 4 mm long, 1.5–2.0 mm wide; involucre bracts with pink or purplish tinges, oblong-elliptical, ca. 7 mm long, 1.5 mm wide, obtuse and often slightly mucronate at tips, bases somewhat gibbous, outer

bracts densely puberulous outside. Florets with corollas whitish or cream-colored, slightly carnosose, glabrous outside, 6–7 mm long, basal tube 2–3 mm long, throat narrowly funnellform, ca. 2 mm long, lobes erect to spreading at anthesis, oblong-lanceolate, 1.8–2.2 mm long, 0.6–0.8 mm wide, with short papillae along margins, cells short-oblong; anther thecae pale brownish, 1.5–1.8 mm long; apical appendage oblong-ovate, ca. 0.3 mm long; style densely long-papillose on base and proximal shaft; style branches with strong, short papillae. Achenes ca. 3.5 mm long, 5-costate, with dense papillae on proximal half of costae; pappus sordid whitish, ca. 4.5 mm long, of ca. 120 capillary bristles 2–3-seriate, not broadened distally.

Paratypes.—Ecuador. Loja: Parque Nacional Podocarpus, S of Loja, above “Centro de Información”, E of Nudo de Cajanuma, 04°05'S, 79°10'W, 3000–3200 m, 22 Feb 1985, *Øllgaard, Laegaard, Thomsen, Korning, & Illum 57961* (AAU, QCA, US). Zamora-Chinchipec: Zamora Cantón, carretera Zamora–Loja, Vertiente Oriental de la Cordillera, 03°57'S, 79°17'W, 2800 m, 29 Oct 1991, *Palacios & Freire 8818* (MO, QCNE, US).

Habitats cited for *Mikania zamorae* are a mountain crest with low scrub and a cloud forest. The species is not known from nearby Peru. Nevertheless, specimens were previously determined as the Peruvian *M. featherstonei* B. L. Rob. The latter is not closely related, having larger, non-cordate to scarcely cordate leaves with trinervation distinctly distal to base of the blade, a looser inflorescence, and a salver-shaped corolla limb with submarginal veins, more like *M. holwayana* B. L. Rob. The present species is also distinct in the densely long-papillose shaft of the style.

Acknowledgments

The technical help and observations by Marjorie Knowles are acknowledged. The scans of the US type specimens were most-



Fig. 16. *Mikania zamorae* H. Rob. & W. C. Holmes, holotype, Dodson & Thien 1352 (US).

ly prepared by Susan Hunter, formerly of the Department of Botany.

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